IB889

AMD eNile Platform

Geneva ASB2 CPU+785E+SB820M

3.5″ Disk Size SBC

USER'S MANUAL

Version 1.0

Acknowledgments

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Introduction

Product Description

The 3.5-inch disk-size IB889 is based on the AMD Athlon™ II Neo processor built with the AMD 785E chipset. Dimensions of the board are 102mm x 147mm. It features a low-power design, with one SO-DIMM socket supporting DDR3 memory modules for a maximum size of 4GB system memory.

Features
- AMD Athlon™ II Neo / Turion™ II Neo Processors on board, up to 2.2GHz
- 1 x DDR3 SO-DIMM , Max. 4GB
- Integrated HD4200, supports DVI and LVDS
- 2 x PCI-E Gigabit LAN
- 2x SATA III, 6x USB 2.0, 2x COM,
- Digital I/O, Watchdog timer

The IB889 is currently available in the following configurations:

IB889-22	AMD Turion™ II Neo N54L (2.2GHz), 785E, 3.5"-inch Disk Size SBC w/ DVI and dual PCI-E Gigabit LAN
IB888-13	AMD Athlon™ II Neo N36L (1.3GHz), 785E, 3.5"-inch Disk Size SBC w/ DVI and dual PCI-E Gigabit LAN

Remarks: Specifications and offerings are subject to change without prior notice.
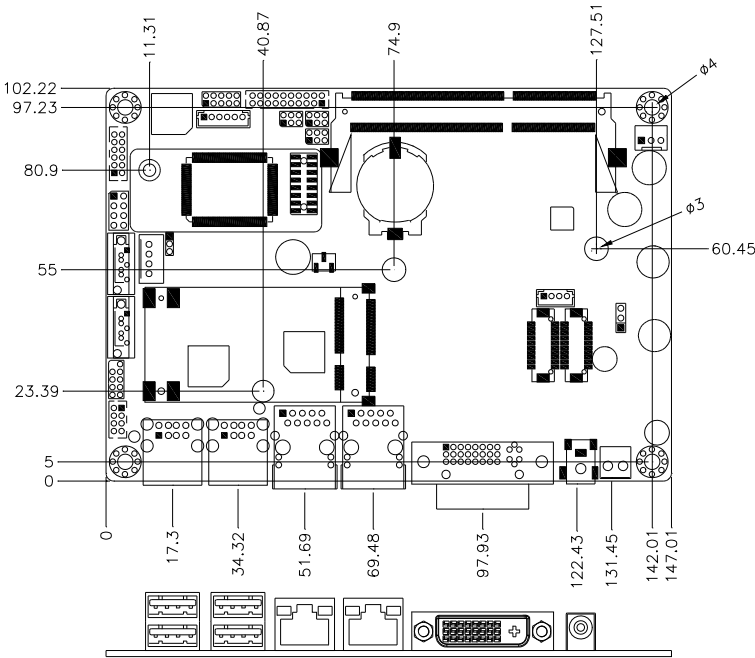
Checklist

Your IB889 package should include the items listed below.

- The IB889 3.5" disk-size SBC
- This User's Manual
- 1 CD containing chipset drivers and flash memory utility
- Cable kit for SATA and COM port
- Optional cables for USB and audio

IB889 Specifications

Product Name	**IB889-13 / IB889-22**
Form Factor	3.5" Disk Size SBC
CPU Type	AMD Geneva ASB2 Turion™ II Neo / Athlon™ II Neo DC CPU
CPU Operate Frequency	Dual-Core CPU (27 x 27 mm) /45nm SOI / 812-ball package FSB=3200 MHz Hyper Transport **AMD Athlon™ II Neo N36L=1.3GHz DC (12W)** **AMD Turion™ II Neo N54L=2.2GHz DC (25W)**
Cache	2MB
Green /APM	APM1.2
CPU Socket	812-ball BGA ASB2 CPU on board
Chipset	AMD 785E NB : 21 mm x 21 mm AMD SB820M SB: 21mm x 21mm
BIOS	AMI BIOS, support ACPI function
Memory	DDRIII-800 SO-DIMM x1 , Single Channel, Max. 4GB (Non-ECC, 1.5V)
VGA	AMD 785E built-in ATi HD4200 Graphics Core 1 x Dual Link DVI-I connector (via 785E TMDS & RAM DAC)
LVDS	AMD 785E built-in 1 x 24-bit dual channels w/ DF13 socket x2 (via LVTM)
LAN	Realtek 8111DL PCI-Express GbE x 1 for 1st LAN Realtek 8111DL PCI-Express GbE x 1 for 2nd LAN
USB	SB820M built-in USB 2.0 host controller, supports **6** ports
Audio	SB820M Built-in HD Audio engine + Audio Codec Realtek ALC662 w/ 5.1 channels (Line-out, Line-in, Mic.)
Expansion Slot	Mini PCI-e socket x 1 w/ USB for Wireless LAN or TV-tuner module
Parallel IDE/ CF	N/A
Serial ATA Ports	SB820M built-in SATA controller, supports 2 x ports for SATA 3.0
LPC I/O	W83627DHG-P: COM1 (RS232/422/485), COM2 (RS232) & hardware monitor (3 thermal inputs, 6 voltage monitor inputs, 2 fan headers).
Edge Connector	DVI-I Connector x 1 RJ45 x 2 for LAN 1 & LAN 2 Dual USB stack connector x2 for USB1/2 & 3/4 DC jack x 1
On Board Header / Connectors	DF13 Socket x2 for LVDS 2x4 pins header x1 for USB 5/6 2x6 pins header x1 for Audio 2x10 pins header x1 for COM1 (RS232/422/485) & COM2(RS232 only) 2x5 pins headers x 1 for LPC(80-port card debugging purpose) 5 pins box header x 1 for smart battery 4 pins box header x 1 for backlight/brightness control 4-pins power connector x 1 for SATA HDD 3-pins connector x 1 for CPU fan 2-pins connector x 1 for DC-in power
Digital I/O	4 in & 4 out
Watchdog Timer	Yes (256 segments, 0, 1, 2…255. sec/min)
Power Connector	+12V DC-IN
Board Size	102x147mm

Board Dimensions

Installations

This section provides information on how to use the jumpers and connectors on the IB889 in order to set up a workable system. The topics covered are:

Installing the Memory

The IB889 board supports a DDR3 memory socket for a maximum total memory of 4GB in DDR3 800 memory type.

Installing and Removing Memory Modules

To install DDR3 modules, locate the memory socket on the board and perform the following steps:

1. Hold the DDR3 module so that the keys of the DDR3 module align with those on the memory slot.

2. Gently push the DDR3 module in an angle as shown in the picture below until the clips of the sockets lock to hold the DDR3 module in place when the DDR3 module touches the bottom of the socket.

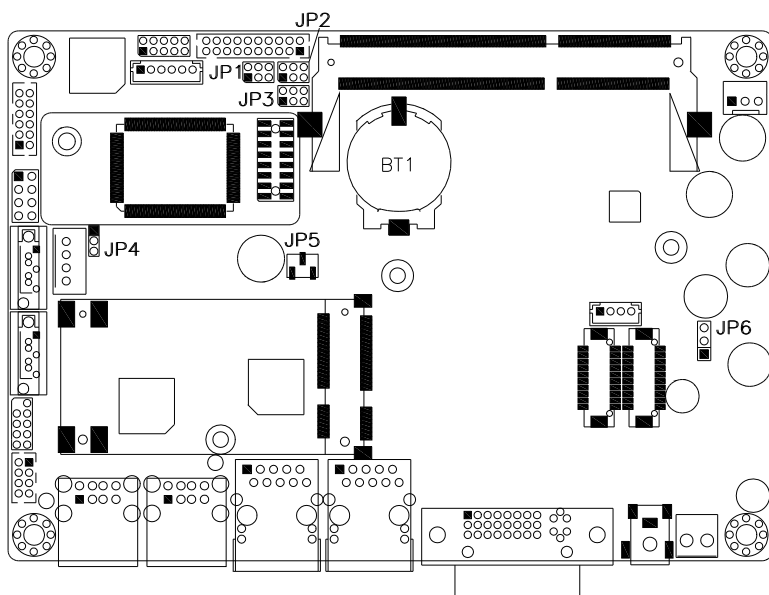3. To remove the DDR3 module, press the clips with both hands.
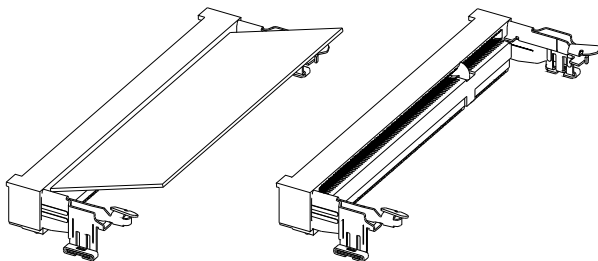
Setting the Jumpers

Jumpers are used on IB889 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the connectors on IB889 and their respective functions.

Jumper Locations on IB889

JP5: Clear CMOS Setting

JP5	Setting
□ □ □ 1 2 3	Normal
□ □ □ 1 2 3	Clear CMOS

JP1, JP2, JP3: RS232/422/485 (COM2) Selection

COM1 is fixed for RS-232 use only.
COM2 is selectable for RS232, RS-422 and RS-485.
The following table describes the jumper settings for COM2 selection.

2 4 6
□ □ □
□ □ □
1 3 5
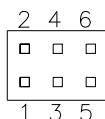
COM2 Function	RS-232	RS-422	RS-485
Jumper Setting (pin closed)	JP1: 1-2 JP2: 3-5 & 4-6 JP3: 3-5 & 4-6	JP1: 3-4 JP2: 1-3 & 2-4 JP3: 1-3 & 2-4	JP1: 5-6 JP2: 1-3 & 2-4 JP3: 1-3 & 2-4

JP4: ATX or AT Power Selection

JP4	ATX Power
□ □ □ 1 2 3	ATX
□ □ □ 1 2 3	AT

JP6: LCD Panel Power Selection

JP6	LCD Panel Power
□ □ □ 1 2 3	3.3V
□ □ □ 1 2 3	5V

Connectors on IB889

Connector Locations on IB889
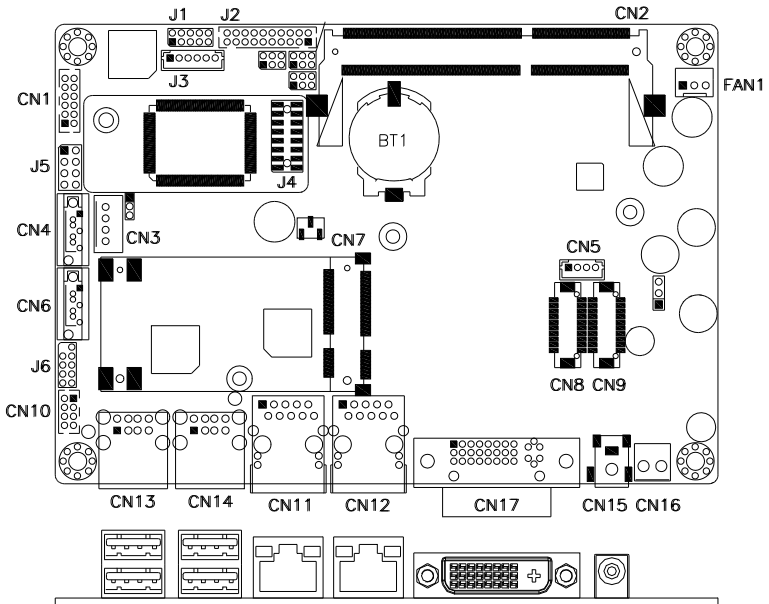
CN13, CN14: USB0/1/4/5 Ports

CN11, CN12: GbE RJ45 Ports

CN17: DVI-I Connector

Signal Name	Pin #	Pin #	Signal Name
DATA 2-	1	16	HOT POWER
DATA 2+	2	17	DATA 0-
Shield 2/4	3	18	DATA 0+
DATA 4-	4	19	SHIELD 0/5
DATA 4+	5	20	DATA 5-
DDC CLOCK	6	21	DATA 5+
DDC DATA	7	22	SHIELD CLK
VSYNC	8	23	CLOCK -
DATA 1-	9	24	CLOCK +
DATA 1+	10	C1	Red.
SHIELD 1/3	11	C2	Green
DATA 3-	12	C3	Blue
DATA 3+	13	C4	HSYNC
DDC POWER	14	C5	Ground
A GROUND 1	15	C6	Ground

CN15, CN16: DC-IN 12V Power Connector
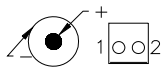
Pin #	Signal Name
1	DC in (12V only)
2	Ground

FAN1: System Fan Power Connector

FAN1 are 3-pin headers for system fans. The fan must be a 12V fan.
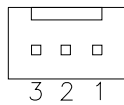
Pin #	Signal Name
1	Ground
2	+12V
3	Rotation detection

CN1: Audio Connector (DF11 Connector)
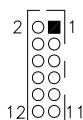
Signal Name	Pin #	Pin #	Signal Name
LINEOUT R	2	1	LINEOUT L
Ground	4	3	JD FRONT
LINEIN R	6	5	LINEIN
Ground	8	7	JD LINEIN
MIC-In	10	9	MIC L
Ground	12	11	JD MIC1

CN3: HDD Power Connector

Pin #	Signal Name
1	+5V
2	Ground
3	Ground
4	+12V

CN4, CN6: Serial ATA Connectors

CN5: LCD Backlight Connector

Pin #	Signal Name
1	+12V
2	Backlight Enable
3	Backlight Adj
4	Ground

CN9/CN8: LVDS Connector (1st channel, 2nd channel)

The LVDS connectors, DF13 20-pin mating connectors, are composed of the first channel (CN9) and second channel (CN8) to support 24-bit or 48-bit.
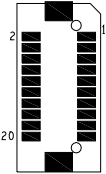
Signal Name	Pin #	Pin #	Signal Name
TX0-	2	1	TX0+
Ground	4	3	Ground
TX1-	6	5	TX1+
*5V/3.3V	8	7	Ground
TX3-	10	9	TX3+
TX2-	12	11	TX2+
Ground	14	13	Ground
TXC-	16	15	TXC+
*5V/3.3V	18	17	VDD_EDID
DAT_EDID	20	19	CLK_EDID

JP6 can be used to set 3.3V or 5V.

CN10: USB2/USB3 Connector
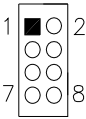
Signal Name	Pin	Pin	Signal Name
Vcc	1	2	Ground
D0-	3	4	D1+
D0+	5	6	D1-
Ground	7	8	Vcc

J1: Digital I/O

Signal Name	Pin	Pin	Signal Name
GND	1	2	VCC
OUT3	3	4	OUT1
OUT2	5	6	OUT0
IN3	7	8	IN1
IN2	9	10	IN0

J2: COM1/2: Serial Port

J2 COM1 serial port connector is jumper selectable for RS-232, RS-422 and RS-485. COM2 serial port support RS-232 only.
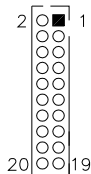
Signal Name	Pin #	Pin #	Signal Name
DSR1 Data set ready	2	1	DCD1 Data carrier detect
RTS1 Request to send	4	3	RXD1 Receive data
CTS1 Clear to send	6	5	TXD1 Transmit data
RI1 Ringing indicator	8	7	DTR1 Data terminal ready
Not used	10	9	Ground
DSR2	12	11	DCD2
RTS2	14	13	RXD2
CTS2	16	15	TXD2
RI2	18	17	DTR2
Not used	20	19	Ground

Pin #	Signal Name		
	RS-232	R2-422	RS-485
1	DCD1	TX-	DATA-
2	DSR1	NC	NC
3	RXD1	TX+	DATA+
4	RTS1	RTS1	RTS1
5	TXD1	RX+	NC
6	CTS1	NC	NC
7	DTR1	RX-	NC
8	RI1	NC	NC
9	Ground	Ground	Ground
10	NC	NC	NC

J5: System Function Connector

```
 ┌─┬───────┐
 │ │ □   □ │ ⌐Pin 1/2 ATX Power On Switch
 │ │ □   □ │   Pin 3/4 Power LED+−
 │ │ □   □ │   Pin 5/6 HDD LED+−
 │ │ □   □ │ ∞Pin 7/8 Reset Switch
```

ATX Power ON Switch: Pins 1 and 2

This 2-pin connector is an "ATX Power Supply On/Off Switch" on the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will force the system to power off.

Power LED: Pins 3 and 4

Pin #	Signal Name
3	Vcc
4	Ground

Hard Disk Drive LED Connector: Pins 5 and 6

This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

Pin #	Signal Name
6	HDD Active
5	Vcc

Reset Switch: Pins 7 and 8

The reset switch allows the user to reset the system without turning the main power switch off and then on again.

J6: SPI Flash Connector (factory use only)

BIOS Setup

This chapter describes the different settings available in the AMI (American Megatrends, Inc.) BIOS that comes with the board. The topics covered in this chapter are as follows:

BIOS Introduction

The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
            Press  <DEL>  to  Enter  Setup
```

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Main BIOS Setup

This setup allows you to record some basic hardware configurations in your computer system and set the system clock.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

System Overview

AMIBIOS
Version   :08.00.15
Build Date:08/04/10

Processor
AMD Turion™ II Neo N54L Dual Core Processor
Speed   : 2200MHz
Count   : 2

System Memory
Size   : 1792MB

System Time   [17:00:00]
System Date   [Thu 08/19/2010]

Use[ENTER], [TAB]
or [SHIFT-TAB] to
select a field.

Use [+] or [-] to
configure system Time.

<-   Select Screen
↑↓   Select Item
+-   Change Field
Tab Select Field
F1   General Help
F10 Save and Exit
ESC Exit

Note: *If the system cannot boot after making and saving system changes with Setup, the AMI BIOS supports an override to the CMOS settings that resets your system to its default.*

Warning: *It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.*

Advanced Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.

Main	**Advanced**	PCIPnP	Boot	Security	Chipset	Exit

Advanced Settings

Configure CPU.

WARNING: Setting wrong values in below sections
may cause system to malfunction.

► **CPU Configurations**
► IDE Configuration
► Super IO Configuration
► Hardware Health Configuration
► ACPI Configuration
► AHCI Configuration
► PCI Express Configuration
► Trusted Computing
► USB Configuration
► Lan Configuration
► Power Configuration

<-   Select Screen
↑↓   Select Item
Enter   Go to Sub Screen
F1   General Help
F10 Save and Exit
ESC Exit

The fields in each section are shown in the following sections, as seen in the computer screen. Please note that setting the wrong values may cause the system to malfunction. If unsure, please contact technical support of your supplier.

BIOS SETUP UTILITY

Advanced

CPU Configuration

Module Version: 15.00
AGESA Version: 1.0.0.0
Physical Count: 1
Logical Count: 2

AMD Turion™ II Neo N54L Dual Core Processor
Revision: C3
Cache L1: 256KB
Cache L2: 2048KB
Cache L3: N/A
Speed: 2200MHz,   NB Clk: 1600MHz
Able to Change Freq. : Yes
uCode Patch Level: 0x10000B6

GART Error Reporting	[Disabled]
Microcode Update	[Enabled]
Secure Virtual Machine Mode	[Enabled]
PowerNow	[Enabled]
C1E Support	[Enable]

This option should remain disabled for the normal operation. The driver developer may enable it for testing purpose.

<-   Select Screen
↑↓   Select Item
+-   Change Field
F1   General Help
F10 Save and Exit
ESC Exit

Advanced		
IDE Configuration		DISABLED: disables the integrated IDE Controller.
OnBoard PCI IDE Controller	**[Both]**	PRIMARY: enables only the Primary IDE Controller.
		SECONDARY: enables only the Secondary IDE Controller.
► Primary IDE Master	: [Not Detected]	BOTH: enables both IDE Controllers.
► Primary IDE Slave	: [Not Detected]	
► Secondary IDE Master	: [Not Detected]	
► Secondary IDE Slave	: [Not Detected]	
► Third IDE Master	: [Not Detected]	**<- Select Screen**
► Third IDE Slave	: [Not Detected]	**↑↓ Select Item**
► Fourth IDE Master	: [Not Detected]	**+- Change Field**
► Fourth IDE Slave	: [Not Detected]	**F1 General Help**
Hard Disk Write Protect	[Disabled]	**F10 Save and Exit**
IDE Detect Time Out (Sec)	[35]	**ESC Exit**
ATA(PI) 80Pin Cable Detection	[Host & Device]	

The IDE Configuration menu is used to change and/or set the configuration of the IDE devices installed in the system.

BIOS SETUP UTILITY

Advanced		
Configure Win627DHG Super IO Chipset		Allows BIOS to Select Serial Port Base Addresses
Serial Port1 Address	**[3F8/IRQ4]**	
Serial Port2 Address	[2F8/IRQ3]	
Restore on AC Power Loss	[Power Off]	**<-** **Select Screen**
		↑↓ **Select Item**
		+- **Change Field**
		F1 **General Help**
		F10 Save and Exit
		ESC Exit

Onboard Serial Port

The default values are:

    Serial Port 1:   3F8/IRQ4

    Serial Port 2:   2F8/IRQ3

Restore on AC Power Loss

This field sets the system power status whether *Power On or Power Off* when power returns to the system from a power failure situation.

BIOS SETUP UTILITY

Advanced		
Hardware Health Configuration		**Options**
System Temperature	:43°C/109°F	**Disabled**
CPU Temperature	:64°C/147°F	**80°C/176°F**
NB Temperature	:49°C/120°F	**85°C/185°F**
		90°C/194°F
CPUFAN Speed	:6490 RPM	**95°C/203°F**
Vcore	:1.152 V	
+3.3V	:3.328 V	
+12V	:12.196 V	**<-** **Select Screen**
VDDR3	:1.480 V	↑↓ **Select Item**
VGPU	:1.104V	**+-** **Change Field**
+5V	: 5.068V	**Tab Select Field**
VSB	:3.328V	
VBAT	:3.328V	**F1** **General Help**
CPU Shutdown Temperature	**[Disabled]**	**F10 Save and Exit**
		ESC Exit

BIOS SETUP UTILITY

Advanced	
ACPI Settings	**General ACPI Configuration settings**
►**General ACPI Configuration** ►Advanced ACPI Configuration	

BIOS SETUP UTILITY

Advanced	
General ACPI Configuration	**Select the ACPI state used for System Suspend.**
Suspend mode **[S1 (POS)]** C1E Support [Enable]	

BIOS SETUP UTILITY

Advanced	
Advanced ACPI Configuration	**Enable RSDP pointers to 64-bit Fixed System Description Tables. Different ACPI version Has some addition**
ACPI Version Features **[ACPI v1.0]** ACPI APIC support [Enabled] AMI OEMB table [Enabled] Headless mode [Disabled]	

BIOS SETUP UTILITY

Advanced	
AHCI Settings **[Enabled]**	**Enables for supporting AHCI controller in AHCI mode during BIOS control otherwise operates in IDE mode.**
AHCI BIOS Support AHCI Port0 [Not Detected] AHCI Port1 [Not Detected] AHCI Port2 [Not Detected] AHCI Port3 [Not Detected] AHCI Port4 [Not Detected] AHCI Port5 [Not Detected]	

Advanced		Enables/Disables
PCI Express Configuration		**Pci Express Device Relaxed Ordering.**
Relaxed Ordering	**[Auto]**	
Maximum Payload Size	[Auto]	
Extended Tag Field	[Auto]	
No Snoop	[Auto]	
Maximum Read Reqquest Size	[Auto]	
Active State Power Management	[Disabled]	
Extended Synch	[Auto]	

BIOS SETUP UTILITY

Advanced		Enable/Disable TPM TCG
Trusted Computing		**(TPM 1.1/1.2) supp**
TCG/TPM SUPPORT	**[No]**	**in BIOS**

BIOS SETUP UTILITY

Advanced		Configure the USB Mass Storage Class Devices.
USB Configuration		
Module Version - 2.24.5-13.4		
USB Devices Enabled: 1 Keyboard, 1 Mouse, 1 Drive		
Legacy USB Support	[Enabled]	**<- Select Screen**
USB 2.0 Controller Mode	[HiSpeed]	**↑↓ Select Item**
BIOS EHCI Hand-Off	[Enabled]	**+- Change Field**
Legacy USB1.1 HC Support	[Enabled]	**F1 General Help**
▶USB Mass Storage Device Configuration		**F10 Save and Exit** **ESC Exit**

The USB Configuration menu is used to read USB configuration information and configure the USB settings.

Legacy USB Support

Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.

USB 2.0 Controller Mode

Configures the USB 2.0 controller in HiSpeed (480Mbps) or FullSpeed (12Mbps).This option is enabled by HiSpeed.

BIOS EHCI Hand-Off

Enabled/Disabled. This is a workaround for Oses without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Legacy USB1.1 HC Support

Support USB1.1 HC.

BIOS SETUP UTILITY

Advanced		
Lan Configuration		**Options**
Onboard LAN Option ROM	**[Disabled]**	**Disabled** **Enabled**

BIOS SETUP UTILITY

Advanced		
Power Configuration		**Disable/Enable RTC to generate a wake event.**
RTC Resume	**[Disabled]**	
Resume By Ring	[Disabled]	

PCIPnP Settings

This option configures the PCI/PnP settings.

Main	Advanced	**PCIPnP**	Boot	Security	Chipset	Exit

Advanced PCI/PnP Settings		NO: lets the BIOS Configure all the Devices in the system. YES: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
WARNING: Setting wrong values in below sections may cause system to malfunction.		
Clear NVRAM	[No]	
Plug & Play O/S	**[No]**	
PCI Latency Timer	[64]	
Allocate IRQ to PCI VGA	[Yes]	
Palette Snooping	[Disabled]	
PCI IDE BusMaster	[Enabled]	
OffBoard PCI/ISA IDE Card	[Auto]	
IRQ3	[Available]	
IRQ4	[Available]	
IRQ5	[Available]	
IRQ7	[Available]	
IRQ9	[Available]	
IRQ10	[Available]	
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	
		<- Select Screen
DMA Channel 0	[Available]	↑↓ Select Item
DMA Channel 1	[Available]	+- Change Field
DMA Channel 3	[Available]	F1 General Help
DMA Channel 5	[Available]	F10 Save and Exit
DMA Channel 6	[Available]	ESC Exit
DMA Channel 7	[Available]	

Clear VRAM
Clear VRAM during system boot.

Plug & Play O/S
This lets BIOS configure all devices in the system or lets the OS configure PnP devices not required for boot if your system has a Plug and Play OS.

Allocate IRQ to PCI VGA
This assigns IRQ to PCI VGA card if card requests IRQ or doesn't assign IRQ to PCI VGA card even if card requests an IRQ.

Palette Snooping
When enabled, PCI will allow VGA palette signals to go to the ISA bus.

PCI IDE BusMaster

This function allows the BIOS to use PCI BusMastering for reading or writing to IDE drives.

OffBoard PCI/ISA IDE Card

This option specifies if an offboard PCI IDE controller adapter card is installed in the computer. You must specify the PCI Expansion slot on the motherboard where the offboard PCI IDE controller is installed. This disables the onboard PCI IDE controller. You must also specify the IRQs for this PCI IDE card.

IRQ#

Use the IRQ# address to specify what IRQs can be assigned to a particular peripheral device.

Boot Settings

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	**Boot**	Security	Chipset	Exit

Boot Settings	Configure Settings during System Boot.
►**Boot Settings Configuration**	
►Boot Device Priority	<- Select Screen
►Hard Disk Drives	↑↓ Select Item
►CD/DVD Drives	+- Change Field
	Enter Go to Sub Screen
	F1 General Help
	F10 Save and Exit
	ESC Exit

BIOS SETUP UTILITY

Boot

Boot Settings Configuration		Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Quick Boot	[Enabled]	
Quiet Boot	[Disabled]	
AddOn ROM Display Mode	[Force BIOS]	
Bootup Num-Lock	[On]	
PS/2 Mouse Support	[Auto]	<- Select Screen
Wait for 'F1' If Error	[Enabled]	↑↓ Select Item
Hit 'DEL' Message Display	[Enabled]	+- Change Field
Interrupt 19 Capture	[Disabled]	F1 General Help
		F10 Save and Exit
		ESC Exit

Quick Boot
This allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.

Quite Boot
When disabled, this displays normal POST messages. When enabled, this displays OEM Logo instead of POST messages.

AddOn ROM Display Mode
This allows user to force BIOS/Option ROM of add-on cards to be displayed during quiet boot.

Bootup Num-Lock
This select the power-on state for numlock.

PS/2 Mouse Support
This select support for PS/2 mouse.

Wait for 'F1' If Error
When set to Enabled, the system waits for the F1 key to be pressed when error occurs. This allows option ROM to trap interrupt 19.

Hit <DEL> Message Display
This displays "Press <DEL> to run Setup" in POST.

Interrupt 19 Capture
This allows option ROMs to trap interrupt 19.

Security Settings

This setting comes with two options set the system password. Supervisor Password sets a password that will be used to protect the system and Setup utility. User Password sets a password that will be used exclusively on the system. To specify a password, highlight the type you want and press <Enter>. The Enter Password: message prompts on the screen. Type the password and press <Enter>. The system confirms your password by asking you to type it again. After setting a password, the screen automatically returns to the main screen.

To disable a password, just press the <Enter> key when you are prompted to enter the password. A message will confirm the password to be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	Exit

Security Settings	Install or Change the Password.
Supervisor Password : Not Installed	
User Password : Not Installed	
Change Supervisor Password	<- Select Screen
Change User Password	↑↓ Select Item
	Enter Change
Boot Sector Virus Protection [Disabled]	F1 General Help
	F10 Save and Exit
	ESC Exit

Advanced Chipset Settings

This setting configures the north bridge, south bridge and the ME subsystem. WARNING! Setting the wrong values may cause the system to malfunction.

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	**Chipset**	Exit

Advanced Chipset Settings

Options for NB

WARNING: Setting wrong values in below sections
                    may cause system to malfunction.

► **North Bridge Configuration**
► North Bridge2 Configuration
► South Bridge Configuration

<-   Select Screen
↑↓   Select Item
Enter   Go to Sub Screen
F1   General Help
F10 Save and Exit
ESC Exit

BIOS SETUP UTILITY

Chipset

North Bridge Chipset Configuration

Memory Configuration
DRAM Timing Configuration
Size of Dimm #0: 1 GB Timing Configuration
Size of Dimm #1: Non-Presence

Memory CLK	:400 MHz, N/A
CAS Latency(Tcl)	: 6 CLK , N/A
RAS/CAS dELAY(Trcd)	: 6 CLK , N/A
Row Precahrge Time (Trp)	: 6 CLK , N/A
Min Active RAS (Tras)	: 15 CLK , N/A
RAS/RAS Delay (Trrd)	: 4 CLK , N/A
Row Cycle (Trc)	: 21 CLK , N/A
Read to Precharge (Trtp)	: 4 CLK , N/A
Write Recover Time (Twr)	: 6 CLK , N/A
HT Link Width Control	**[Enable]**
GfxNBPstateDis Support	**[Enable]**
T0Time Override	**[Disabled]**

<-   Select Screen
↑↓   Select Item
Enter   Go to Sub Screen
F1   General Help
F10 Save and Exit
ESC Exit

Memory Configuration
BIOS SETUP UTILITY

		Chipset
Memory Configuration		Enable Channel Memory
Channel Interleaving	**[**Auto**]**	Interleaving
Enable Clock to All DIMMs	[Disabled]	
Memory Hole Remapping	[Enabled]	
CS Sparing Enable	[Disabled]	
Power Down Enable	[Auto]	
Power Down Mode	[Auto]	
DRAM Parity Enable	[Auto]	**<- Select Screen**
Bank Swizzle Mode	[Auto]	**↑↓ Select Item**
Power Down Enable	[Auto]	**Enter Go to Sub Screen**
		F1 General Help
		F10 Save and Exit
		ESC Exit

DRAM Timing Configuration
BIOS SETUP UTILITY

		Chipset
DRAM Timing Configuration		Optons
DRAM Timing Config	[Auto]	Auto
		Manual
		<- Select Screen
		↑↓ Select Item
		Enter Go to Sub Screen
		F1 General Help
		F10 Save and Exit
		ESC Exit

NorthBridge2 Chipset Configuration
BIOS SETUP UTILITY

	Chipset
NorthBridge2 Chipset Configuration **RS880 CIMx Version : 1.3.0.5** ►Internal Graphics Configuration NB Power Management Features [Auto] Memory Hole [Disabled]	**<- Select Screen** ↑↓ **Select Item** **Enter Go to Sub Screen** **F1 General Help** **F10 Save and Exit** **ESC Exit**

Internal Graphics Configuration
BIOS SETUP UTILITY

	Chipset
Internal Graphics Configuration	Options

Internal Graphics Mode   **[UMA+SIDEPORT]**
  UMA Frame Buffer Size   [Auto]
  SIDEPORT Clock Speed   [400MHz]
GFX Engine Clock Override   [Disable]
UMA-SP Interleave Mode   [Auto]
SP Power Management   [Auto]
SP NB Termination   [Disable]
SP Memory Termination   [Disable]
SP CMD Hold   [Auto]
SP CMD Hold   [Auto]
 	
Special Graphics Features   [Disabled]
FB Location   [Below 4G]
 	
LVDS Type Select   [NOT EDID]
LVDS ID Selection   [1024 x 768 24 bit]
LVDS Back Light Control   [7 (Max)]
	Disable
	UMA
	SIDEPORT
	UMA+SIDEPORT
	
	<- Select Screen
	↑↓ **Select Item**
	Enter Go to Sub Screen
	F1 General Help
	F10 Save and Exit
	ESC Exit

South Bridge Configuration

BIOS SETUP UTILITY

Chipset
SouthBridge Chipset Configuration	Options for SB GPP Por
►**SP GPP Port Graphics Configuration**	
►**SB Azalia Audio Configuration**	
►**SB SATA Configuration**	
	<- Select Screen
	↑↓ Select Item
	Enter Go to Sub Screen
	F1 General Help
	F10 Save and Exit
	ESC Exit

BIOS SETUP UTILITY

Chipset
SB GPP Port Configuration	Options
SB GPP Function	[Enable]	Disable Enable
GPP Port Link Configuration	[1:1:1:1 mode]	
Unhide unused GPP ports	[Disable]	**<- Select Screen**
GPP Link ASPM	[Disable]	**↑↓ Select Item**
GPP Lane Reversal	[Disabled]	**Enter Go to Sub Screen**
NB-SB PHY PLL Power Down	[Enable]	**F1 General Help**
GPP PHY PLL Power Down	[Enable]	**F10 Save and Exit**
		ESC Exit

BIOS SETUP UTILITY

Chipset
Onchip HD Azalia Configuration	Options
	Auto
HD Audio Azalia Device	[Enabled]	Disable
HD Onboard PIN Config	[Enabled]	Enable
Azalia Front Panel	[Auto]	
SDIN0 Pin Config	[Azalia]	**<- Select Screen**
SDIN1 Pin Config	[Azalia]	**↑↓ Select Item**
SDIN2 Pin Config	[Azalia]	**Enter Go to Sub Screen**
SDIN3 Pin Config	[GPIO]	**F1 General Help**
Azalia Snoop	[Disabled]	**F10 Save and Exit**
		ESC Exit

	Chipset
Onchip SATA Configuration	Options
	Auto
OnChip SATA Channel [Enabled]	Disable
OnChip SATA Type [IDE]	Enable
OnChip IDE Type [Legacy IDE]	
SATA IDE Combined Mode [Enabled]	**<- Select Screen**
PATA Channel Config [SATA as primary]	**↑↓ Select Item**
	Enter Go to Sub Screen
	F1 General Help
	F10 Save and Exit
	ESC Exit

OnChip SATA Type

The options are:

(1) IDE

(2) RAID

(3) AHCI

Exit Setup

The exit setup has the following settings which are:

BIOS SETUP UTILITY

Main	Advanced	PCIPnP	Boot	Security	Chipset	**Exit**

Exit Options

Save Changes and Exit
Discard Changes and Exit
Discard Changes

Load Optimal Defaults
Load Failsafe Defaults

Exit system setup
after saving the
changes.

F10 key can be used
for this operation

<-   Select Screen
↑↓   Select Item
Enter   Go to Sub Screen
F1   General Help
F10 Save and Exit
ESC Exit

Save Changes and Exit
This option allows you to determine whether or not to accept the modifications and save all changes into the CMOS memory before exit.

Discard Changes and Exit
This option allows you to exit the Setup utility without saving the changes you have made in this session.

Discard Changes
This option allows you to discard all the changes that you have made in this session.

Load Optimal Defaults
This option allows you to load the default values to your system configuration. These default settings are optimal and enable all high performance features.

Load Failsafe Defaults
This option allows you to load the troubleshooting default values permanently stored in the BIOS ROM. These default settings are non-optimal and disable all high-performance features.

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Drivers Installation

This section describes the installation procedures for software and drivers under the Windows XP and Windows Vista. The software and drivers are included with the board. If you find the items missing, please contact the vendor where you made the purchase. The contents of this section include the following:

VGA Drivers Installation

1. Insert the CD that comes with the board. Click *AMD* then *AMD 785E Chipset Drivers* and then *AMD 785E Series Graphics Drivers*.
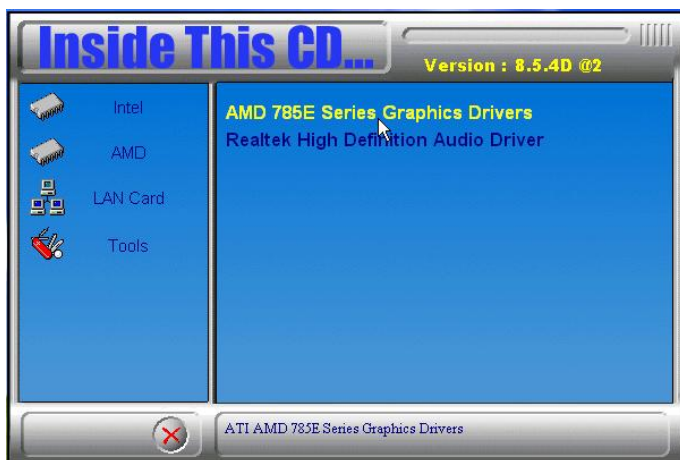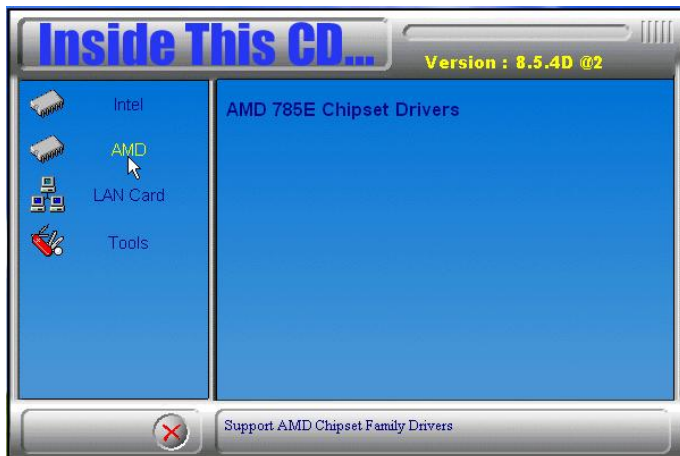
2. When the Welcome Screen appears, click **Next**. Click **Install** to install the ATI software components.
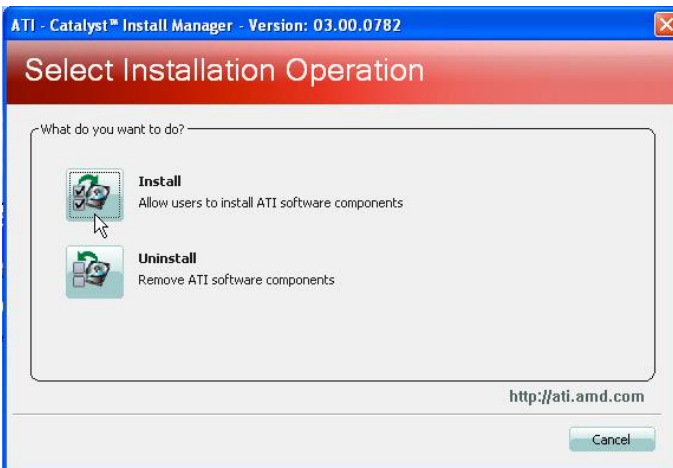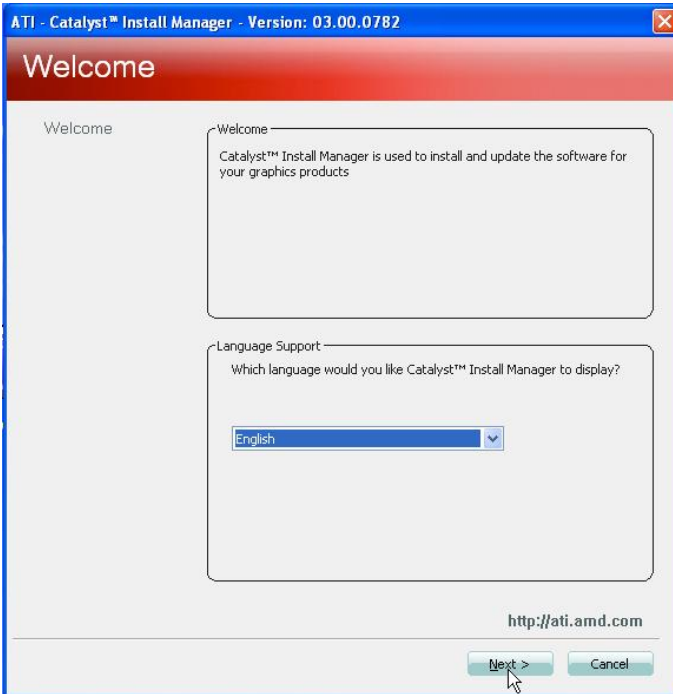
3. Click **Custom** and select the components to install as shown.
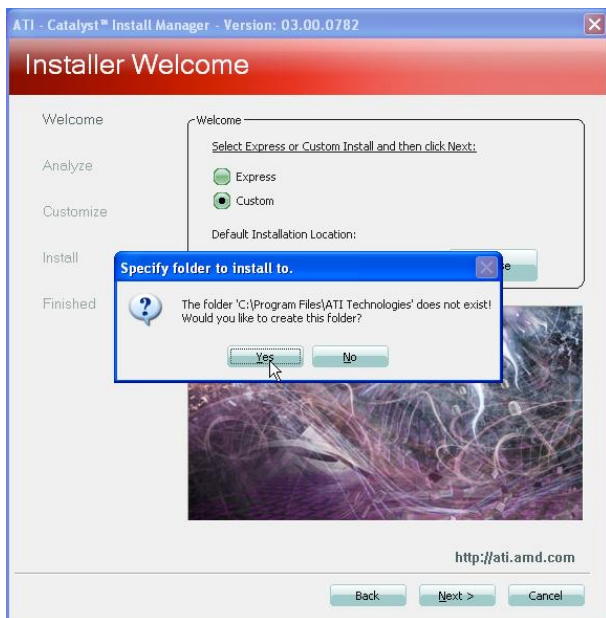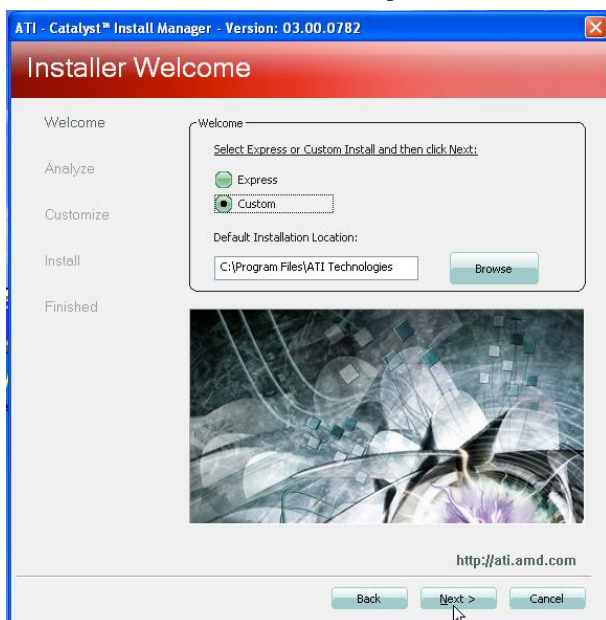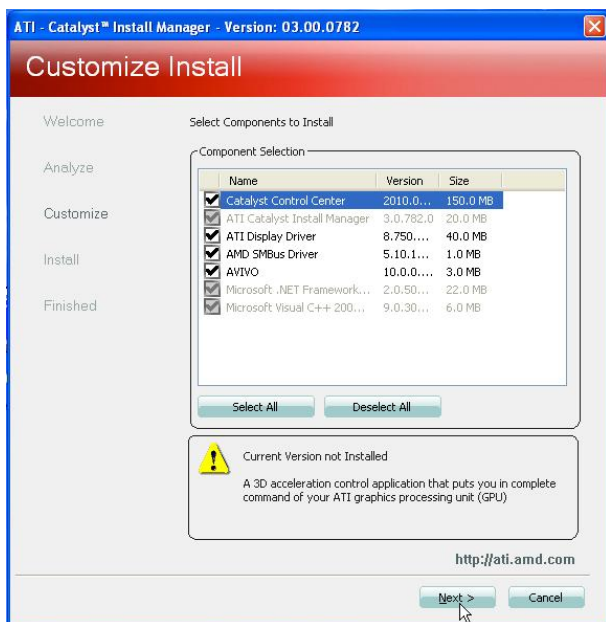
4. Accept the license agreement to proceed with installation. Reboot the computer when prompted for changes to take effect.
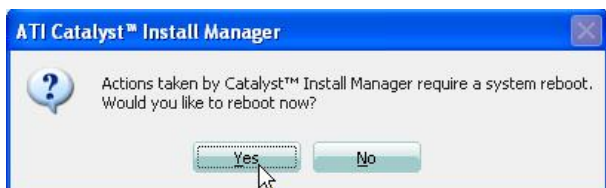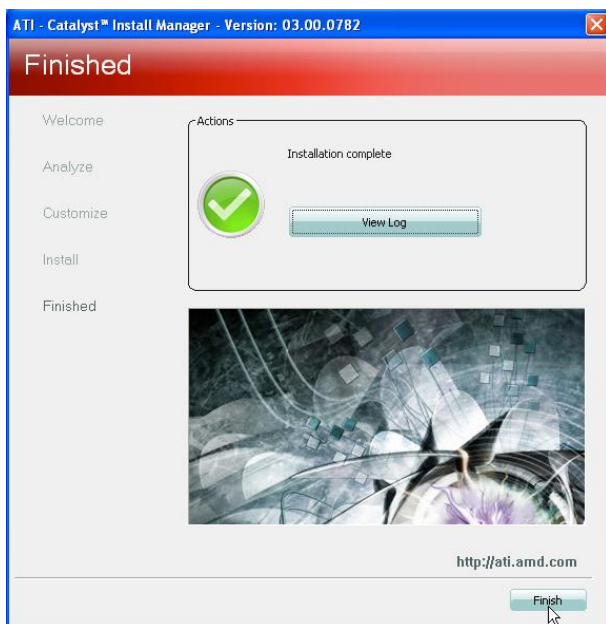
Audio Drivers Installation

1. Insert the CD that comes with the board. Click *AMD* then *AMD 785E Chipset Drivers* and then *Realtek High Definition Audio Driver*.
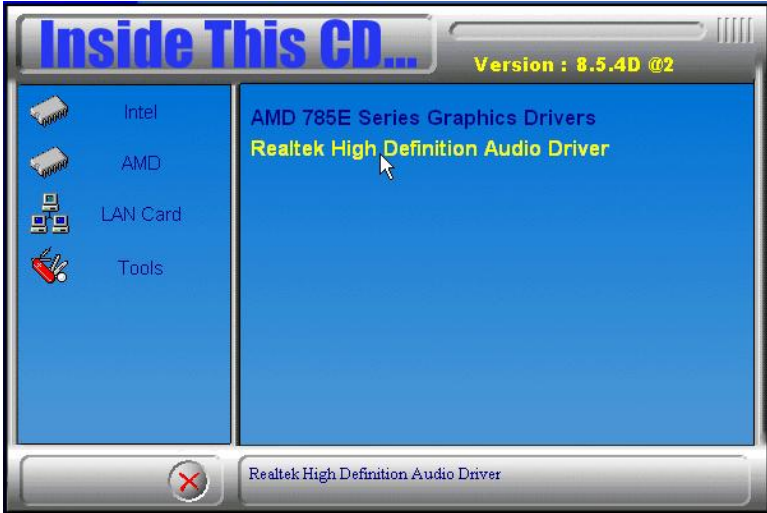
2. The Welcome screen to the InstallShieled Wizard for Realtek High Definition Audio Driver will appear. At this point, click **Next** to continue the installation process.

3. When installation is completed, restart the computer as prompted. Click **Finish**.

LAN Drivers Installation

1. Insert the CD that comes with the board. Click *LAN Card* at the left side and then *Realtek LAN Controller Drivers*.

2. In the welcome screen of the InstallShield Wizard for REALTEK GbE & FE Ethernet PCI-E NIC Driver, click *Next*.
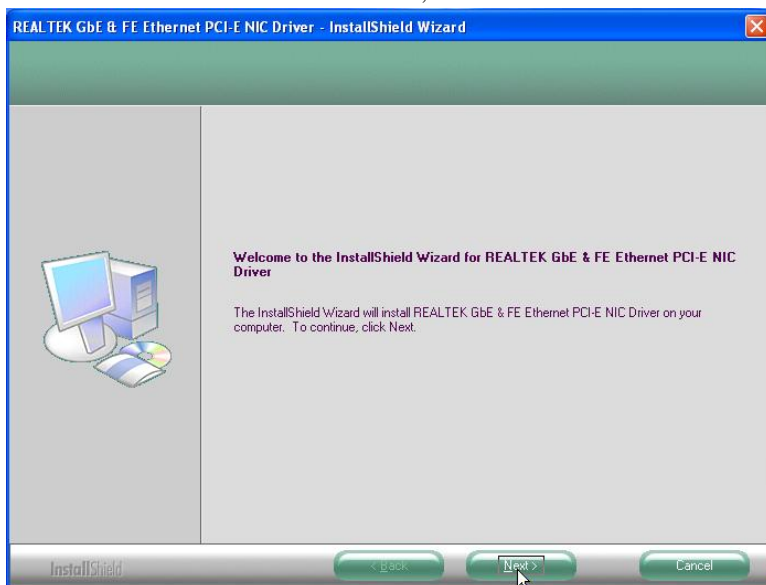
3. In the InstallShield Wizard screen, click *Install* to begin the installation.

4. InstallShield Wizard completed. Click *Finish* to exit the Wizard.

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Appendix

A. I/O Port Address Map

Each peripheral device in the system is assigned a set of I/O port addresses, which also becomes the identity of the device. The following table lists the I/O port addresses used.

Address	Device Description
000h - 01Fh	DMA Controller #1
020h - 03Fh	Interrupt Controller #1
040h - 05Fh	Timer
060h - 06Fh	Keyboard Controller
070h - 07Fh	Real Time Clock, NMI
080h - 09Fh	DMA Page Register
0A0h - 0BFh	Interrupt Controller #2
0C0h - 0DFh	DMA Controller #2
0F0h	Clear Math Coprocessor Busy Signal
0F1h	Reset Math Coprocessor
1F0h - 1F7h	IDE Interface
278 - 27F	Parallel Port #2(LPT2)
2F8h - 2FFh	Serial Port #2(COM2)
2B0 - 2DF	Graphics adapter Controller
378h - 3FFh	Parallel Port #1(LPT1)
360 - 36F	Network Ports
3B0 - 3BF	Monochrome & Printer adapter
3C0 - 3CF	EGA adapter
3D0 - 3DF	CGA adapter
3F0h - 3F7h	Floppy Disk Controller
3F8h - 3FFh	Serial Port #1(COM1)

B. Interrupt Request Lines (IRQ)

Peripheral devices use interrupt request lines to notify CPU for the service required. The following table shows the IRQ used by the devices on board.

Level	Function
IRQ0	System Timer Output
IRQ1	Keyboard
IRQ2	Interrupt Cascade
IRQ3	Serial Port #2
IRQ4	Serial Port #1
IRQ5	Reserved
IRQ6	Floppy Disk Controller
IRQ7	Parallel Port #1
IRQ8	Real Time Clock
IRQ9	Reserved
IRQ10	Reserved
IRQ11	Reserved
IRQ12	PS/2 Mouse
IRQ13	80287
IRQ14	Primary IDE
IRQ15	Secondary IDE

C. Watchdog Timer Configuration

The WDT is used to generate a variety of output signals after a user programmable count. The WDT is suitable for use in the prevention of system lock-up, such as when software becomes trapped in a deadlock. Under these sorts of circumstances, the timer will count to zero and the selected outputs will be driven. Under normal circumstance, the user will restart the WDT at regular intervals before the timer counts to zero.

SAMPLE CODE:

```
//============================================================================
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//============================================================================
#include <stdio.h>
#include <stdlib.h>
#include "W627EHF.H"
//============================================================================
int main (int argc, char *argv[]);
void copyright(void);
void EnableWDT(int);
void DisableWDT(void);
//============================================================================
int main (int argc, char *argv[])
{
        unsigned char bBuf;
        unsigned char bTime;
        char **endptr;

        copyright();

        if (argc != 2)
        {
                printf(" Parameter incorrect!!\n");
                return 1;
        }

        if (Init_W627EHF() == 0)
        {
                printf(" Winbond 83627HF is not detected, program abort.\n");
                return 1;
        }
        bTime = strtol (argv[1], endptr, 10);
        printf("System will reset after %d seconds\n", bTime);

        EnableWDT(bTime);

        return 0;
}
//============================================================================
```

```
void copyright(void)
{
        printf("\n======= Winbond 83627EHF Watch Timer Tester (AUTO DETECT) =======\n"\
                      "      Usage : W627E_WD reset_time\n"\
                      "      Ex : W627E_WD 3  => reset system after 3 second\n"\
                      "           W627E_WD 0  => disable watch dog timer\n");
}
//========================================================================
void EnableWDT(int interval)
{
        unsigned char bBuf;

        bBuf = Get_W627EHF_Reg( 0x2D);
        bBuf &= (!0x01);
        Set_W627EHF_Reg( 0x2D, bBuf);                    //Enable WDTO

        Set_W627EHF_LD( 0x08);                           //switch to logic device 8
        Set_W627EHF_Reg( 0x30, 0x01);                    //enable timer

        bBuf = Get_W627EHF_Reg( 0xF5);
        bBuf &= (!0x08);
        Set_W627EHF_Reg( 0xF5, bBuf);                    //count mode is second

        Set_W627EHF_Reg( 0xF6, interval);                //set timer
}
//========================================================================
void DisableWDT(void)
{
        Set_W627EHF_LD(0x08);                            //switch to logic device 8
        Set_W627EHF_Reg(0xF6, 0x00);                     //clear watchdog timer
        Set_W627EHF_Reg(0x30, 0x00);                     //watchdog disabled
}
//========================================================================
```

```
//============================================================================
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//============================================================================
#include "W627EHF.H"
#include <dos.h>
//============================================================================
unsigned int W627EHF_BASE;
void Unlock_W627EHF (void);
void Lock_W627EHF (void);
//============================================================================
unsigned int Init_W627EHF(void)
{
        unsigned int result;
        unsigned char ucDid;

        W627EHF_BASE = 0x2E;
        result = W627EHF_BASE;

        ucDid = Get_W627EHF_Reg(0x20);
        if (ucDid == 0x88)
        {       goto Init_Finish;       }

        W627EHF_BASE = 0x4E;
        result = W627EHF_BASE;
        ucDid = Get_W627EHF_Reg(0x20);
        if (ucDid == 0x88)
        {       goto Init_Finish;       }

        W627EHF_BASE = 0x00;
        result = W627EHF_BASE;

Init_Finish:
        return (result);
}
//============================================================================
void Unlock_W627EHF (void)
{
        outportb(W627EHF_INDEX_PORT, W627EHF_UNLOCK);
        outportb(W627EHF_INDEX_PORT, W627EHF_UNLOCK);
}
//============================================================================
void Lock_W627EHF (void)
{
        outportb(W627EHF_INDEX_PORT, W627EHF_LOCK);
}
//============================================================================
void Set_W627EHF_LD( unsigned char LD)
{
        Unlock_W627EHF();
        outportb(W627EHF_INDEX_PORT, W627EHF_REG_LD);
        outportb(W627EHF_DATA_PORT, LD);
        Lock_W627EHF();
}
```

```
//============================================================================
void Set_W627EHF_Reg( unsigned char REG, unsigned char DATA)
{
      Unlock_W627EHF();
      outportb(W627EHF_INDEX_PORT, REG);
      outportb(W627EHF_DATA_PORT, DATA);
      Lock_W627EHF();
}
//============================================================================
unsigned char Get_W627EHF_Reg(unsigned char REG)
{
      unsigned char Result;
      Unlock_W627EHF();
      outportb(W627EHF_INDEX_PORT, REG);
      Result = inportb(W627EHF_DATA_PORT);
      Lock_W627EHF();
      return Result;
}
//============================================================================




//============================================================================
//
// THIS CODE AND INFORMATION IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY
// KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE
// IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR
// PURPOSE.
//
//============================================================================
#ifndef __W627EHF_H
#define __W627EHF_H                     1
//============================================================================
#define      W627EHF_INDEX_PORT         (W627EHF_BASE)
#define      W627EHF_DATA_PORT          (W627EHF_BASE+1)
//============================================================================
#define      W627EHF_REG_LD             0x07
//============================================================================
#define W627EHF_UNLOCK                  0x87
#define      W627EHF_LOCK               0xAA
//============================================================================
unsigned int Init_W627EHF(void);
void Set_W627EHF_LD( unsigned char);
void Set_W627EHF_Reg( unsigned char, unsigned char);
unsigned char Get_W627EHF_Reg( unsigned char);
//============================================================================
#endif //__W627EHF_H
```